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## SEQUENCE LISTING

<110> TAYLOR, CATHERINE  
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<120> DNA ENCODING APOPTOSIS-INDUCED eIF-5A AND DHS AND A  
METHOD FOR CONTROLLING APOPTOSIS

<130> 10799/13

<140> 09/909,796  
<141> 2001-07-23

<160> 21

<170> PatentIn Ver. 2.1

<210> 1  
<211> 1139  
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<213> Rattus sp.

<220>  
<221> CDS  
<222> (33)..(494)

<400> 1  
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Met Ala Asp Asp Leu Asp Phe  
1 5  
  
gag aca gga gat gca ggg gcc tca gcc acc ttc cca atg cag tgc tca 101  
Glu Thr Gly Asp Ala Gly Ala Ser Ala Thr Phe Pro Met Gln Cys Ser  
10 15 20  
  
gca tta cgt aag aat ggt ttt gtg gtg ctc aag ggc cgg cca tgt aag 149  
Ala Ile Arg Lys Asn Gly Phe Val Val Leu Lys Gly Arg Pro Cys Lys  
25 30 35  
  
atc gtc gag atg tct act tcg aag act ggc aag cat ggc cat gcc aag 197  
Ile Val Glu Met Ser Thr Ser Lys Thr Gly Lys His Gly His Ala Lys  
40 45 50 55  
  
gtc cat ctg gtt ggt att gat att ttt act ggg aag aaa tat gaa gat 245  
Val His Leu Val Gly Ile Asp Ile Phe Thr Gly Lys Lys Tyr Glu Asp  
60 65 70  
  
atc tgc ccg tcg act cat aac atg gat gtc ccc aac atc aaa agg aat 293  
Ile Cys Pro Ser Thr His Asn Met Asp Val Pro Asn Ile Lys Arg Asn  
75 80 85  
  
gat ttc cag ctg att ggc atc cag gat ggg tac cta tcc ctg ctc cag 341  
Asp Phe Gln Leu Ile Gly Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln  
90 95 100

gac agt ggg gag gta cga gag gac ctt cgt ctg cct gag gga gac ctt	389
Asp Ser Gly Glu Val Arg Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu	
105 110 115	
ggc aag gag att gag cag aag tat gac tgt gga gaa gag atc ctg atc	437
Gly Lys Glu Ile Glu Gln Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile	
120 125 130 135	
aca gtg ctg tcc gcc atg aca gag gag gca gct gtt gca atc aag gcc	485
Thr Val Leu Ser Ala Met Thr Glu Glu Ala Ala Val Ala Ile Lys Ala	
140 145 150	
atg gca aaa taactggctt ccagggtgcc ggtgggtggca gcagtgtatcc	534
Met Ala Lys	
atgagcctac agaggccccct ccccccagctc tggctgggcc cttggctgga ctccttatcca	594
attttatttga cgtttttattt tggttttcct cacccttca aactgtcgaa gagaccctgc	654
ccttcaccta gctcccttgg ccaggcatga gggagccatg gccttggta agctacactgc	714
ctcttcctc gcagccctga tgggggaaag ggagtggta ctgcctgtgg tttaggttcc	774
cctctccctt ttcttttta attcaatttgc gaatcagaaa gctgtggatt ctggcaaattg	834
gtcttggtc ctttatccca ctcaaaccctt tctggcccc tggctccat agtccttcac	894
ccccaaagcac cactgacaga ctggggacca gcccccttcc ctgcctgtgt ctcttccaa	954
accctctat aggggtgaca agaagaggag ggggggaggg gacacgatcc ctccctcaggc	1014
atctggaaag gccttgcccc catggcttt acccttcctt gtgggcttcc tccctgacac	1074
atttgttaaa aatcaaacctt gaataaaactt acaagttaa tatgaaaaaaaaaaaaaaaaa	1134
aaaaaa	1139

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<211> 154  
<212> PRT  
<213> Rattus sp.

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Leu Lys Gly Arg Pro Cys Lys Ile Val Glu Met Ser Thr Ser Lys Thr	
35 40 45	
Gly Lys His Gly His Ala Lys Val His Leu Val Gly Ile Asp Ile Phe	
50 55 60	

Thr	Gly	Lys	Lys	Tyr	Glu	Asp	Ile	Cys	Pro	Ser	Thr	His	Asn	Met	Asp
65				70				75				80			
Val	Pro	Asn	Ile	Lys	Arg	Asn	Asp	Phe	Gln	Leu	Ile	Gly	Ile	Gln	Asp
				85					90				95		
Gly	Tyr	Leu	Ser	Leu	Leu	Gln	Asp	Ser	Gly	Glu	Val	Arg	Glu	Asp	Leu
				100				105				110			
Arg	Leu	Pro	Glu	Gly	Asp	Leu	Gly	Lys	Glu	Ile	Glu	Gln	Lys	Tyr	Asp
	115					120				125					
Cys	Gly	Glu	Glu	Ile	Leu	Ile	Thr	Val	Leu	Ser	Ala	Met	Thr	Glu	Glu
	130				135				140						
Ala	Ala	Val	Ala	Ile	Lys	Ala	Met	Ala	Lys						
	145				150										

<210> 3  
<211> 462  
<212> DNA  
<213> Homo sapiens

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cagtgcctcg cattacgtaa gaatggctt gtggtgctca aaggccggcc atgtaagatc 120  
gtcgagatgt ctacttcgaa gactggcaag cacggccacg ccaagggtcca tctgggtgg 180  
attgacatct ttactggaa gaaatatgaa gatatctgcc cgtcaactca taatatggat 240  
gtccccaaaca tcaaaaaggaa tgacttccag ctgattggca tccaggatgg gtaccttatca 300  
ctgctccagg acagcgggaa ggtacgagag gaccttcgtc tccctgaggg agaccttggc 360  
aaggagattt agcagaagta cgactgtgga gaagagatcc tgatcacggt gctgtctgcc 420  
atgacagagg aggcagctgt tgcaatcaag gccatggcaa aa 462

<210> 4  
<211> 462  
<212> DNA  
<213> Homo sapiens

<220>  
<221> modified\_base  
<222> (455)..(456)  
<223> a, t, c or g

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cagtgcctcg cttgcgcaa aaacggcttc gtggtgctca aaggacgacc atgaaaata 120  
gtggagatgt caacttccaa aactgaaag catggcatg ccaagggtca cttgttgg 180  
attgatattt tcacgggcaa aaaatatgaa gatatttgc tttctactca caacatggat 240  
gttccaaata ttaagagaaa tgattatcaa ctgatatgca ttcaagatgg ttaccttcc 300  
ctgctgacag aaactggtgaa agttcgtgag gatcttaaac tgccagaagg tgaacttaggc 360  
aaagaaatag agggaaaata caatgcaggt gaagatgtac aggtgtctgt catgtgtgca 420  
atgagtgaag aatatgctgt agccataaaa ccctnnngcaa at 462



ttc ccc ttg ctg gtg gct gag aca ttc gcc caa aag gca gat gcc ttc 432  
 Phe Pro Leu Leu Val Ala Glu Thr Phe Ala Gln Lys Ala Asp Ala Phe  
 130 135 140

aga gct gag aag aat gag gac tgagcagatg ggtaaagacg gaggcttctg 483  
 Arg Ala Glu Lys Asn Glu Asp  
 145 150

ccacaccttt atttattatt tgcataccaa cccctcctgg gccctctcct tggcagcag 543  
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 aaa 606

<210> 7  
<211> 151  
<212> PRT  
<213> Rattus sp.

<400> 7  
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 20 25 30

Lys Asn Pro Gly Leu Val Leu Asp Ile Val Glu Asp Leu Arg Leu Ile  
 35 40 45

Asn Met Gln Ala Ile Phe Ala Lys Arg Thr Gly Met Ile Ile Leu Gly  
 50 55 60

Gly Gly Val Val Lys His His Ile Ala Asn Ala Asn Leu Met Arg Asn  
 65 70 75 80

Gly Ala Asp Tyr Ala Val Tyr Ile Asn Thr Ala Gln Glu Phe Asp Gly  
 85 90 95

Ser Asp Ser Gly Ala Arg Pro Asp Glu Ala Val Ser Trp Gly Lys Ile  
 100 105 110

Arg Met Asp Ala Gln Pro Val Lys Val Tyr Ala Asp Ala Ser Leu Val  
 115 120 125

Phe Pro Leu Leu Val Ala Glu Thr Phe Ala Gln Lys Ala Asp Ala Phe  
 130 135 140

Arg Ala Glu Lys Asn Glu Asp  
 145 150

<210> 8  
<211> 453  
<212> DNA  
<213> Homo sapiens

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<400> 8
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atcggttggagg acctgaggct catcaacaca caggccatct ttgccaagtg cactggatg 180
atcattctgg gcggggggcgt ggtcaagcac cacattgcca atgccaacct catgcggAAC 240
ggggccgact acgtctttta catcaacaca gcccaggagt ttgatgctc tgactcaggt 300
ccccgaccag acgaggctgt ctccctgggc aagatccggg tggatgcaca gcccgtaag 360
gtctatgctg acgcctccct ggtctccccc ctgcttgtgg ctgaaacctt tgcccagaag 420
atggatgcct tcatgcata gaagaacgag gac 453

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<220>
<221> modified_base
<222> (12)
<223> a, t, c or g

<400> 9
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<210> 10
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 10
gcgaagcttc catggctcga gttttttttt tttttttttt tt 42

<210> 11
<211> 972
<212> DNA
<213> Rattus sp.

<220>
<221> CDS
<222> (1)..(327)

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Ser Lys Thr Gly Lys His Gly His Ala Lys Val His Leu Val Gly Ile
 1           5          10          15

gat att ttt act ggg aag aaa tat gaa gat atc tgc ccg tcg act cat 96
Asp Ile Phe Thr Gly Lys Tyr Glu Asp Ile Cys Pro Ser Thr His
 20          25          30

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aac atg gat gtc ccc aac atc aaa agg aat gat ttc cag ctg att ggc	144		
Asn Met Asp Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly			
35	40	45	
atc cag gat ggg tac cta tcc ctg ctc cag gac agt ggg gag gta cga	192		
Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg			
50	55	60	
gag gac ctt cgt ctg cct gag gga gac ctt ggc aag gag att gag cag	240		
Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln			
65	70	75	80
aag tat gac tgt gga gaa gag atc ctg atc aca gtg ctg tcc gcc atg	288		
Lys Tyr Asp Cys Gly Glu Ile Leu Ile Thr Val Leu Ser Ala Met			
85	90	95	
aca gag gag gca gct gtt gca atc aag gcc atg gca aaa taactggctt	337		
Thr Glu Ala Ala Val Ala Ile Lys Ala Met Ala Lys			
100	105		
ccagggtggc ggtggggca gcagtatcc atgaggctac agaggcccct cccccagctc	397		
tggctggcc cttggctgga ctccatatcca atttatttga cgttttatcc ttggtttccct	457		
cacccttca aactgtcgaa gagaccctgc cttcaccta gctcccttgg ccaggcatga	517		
gggagccatg gccttggta agtacacctgc ctcttctctc gcagccctga tgggggaaag	577		
ggagtgggta ctgcctgtgg tttaggttcc cctctccctt ttctttta attcaatttg	637		
gaatcagaaa gctgtggatt ctggcaaattg gtcttgtgtc ctatccca ctcaaaccctt	697		
tctggcccccc tggctccat agtccttcac ccccaagcac cactgacaga ctggggacca	757		
cccccttcc ctgcctgtgt ctcttccaa acccctctat aggggtgaca agaagaggag	817		
ggggggaggg gacacgatcc ctccctcaggc atctggaaag gccttgcctt catgggcttt	877		
accctttccctt gttggctttc tccctgacac atttgttaaa aatcaaacctt gaataaaactt	937		
acaagtttaa tatgaaaaaaaaaaaaaaa aaaaa	972		

<210> 12  
<211> 109  
<212> PRT  
<213> Rattus sp.

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Asp Ile Phe Thr Gly Lys Tyr Glu Asp Ile Cys Pro Ser Thr His			
20	25	30	
Asn Met Asp Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly			
35	40	45	

Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg  
 50 55 60

Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln  
 65 70 75 80

Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile Thr Val Leu Ser Ala Met  
 85 90 95

Thr Glu Glu Ala Ala Val Ala Ile Lys Ala Met Ala Lys  
 100 105

<210> 13  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 13  
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<210> 14  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 14  
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<210> 15  
<211> 489  
<212> DNA  
<213> Rattus sp.

<220>  
<221> CDS  
<222> (33) .. (485)

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1 5

gag aca gga gat gca ggg gcc tca gcc acc ttc cca atg cag tgc tca 101  
Glu Thr Gly Asp Ala Gly Ala Ser Ala Thr Phe Pro Met Gln Cys Ser  
10 15 20

gca tta cgt aag aat ggt ttt gtg gtg ctc aag ggc cgg cca tgt aag Ala Leu Arg Lys Asn Gly Phe Val Val Leu Lys Gly Arg Pro Cys Lys 25 30 35	149
atc gtc gag atg tct act tcg aag act ggc aag cat ggc cat gcc aag Ile Val Glu Met Ser Thr Ser Lys Thr Gly Lys His Gly His Ala Lys 40 45 50 55	197
gtc cat ctg gtt ggt att gat att ttt act ggg aag aaa tat gaa gat Val His Leu Val Gly Ile Asp Ile Phe Thr Gly Lys Lys Tyr Glu Asp 60 65 70	245
atc tgc ccg tcg act cat aac atg gat gtc ccc aac atc aaa agg aat Ile Cys Pro Ser Thr His Asn Met Asp Val Pro Asn Ile Lys Arg Asn 75 80 85	293
gat ttc cag ctg att ggc atc cag gat ggg tac cta tcc ctg ctc cag Asp Phe Gln Leu Ile Gly Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln 90 95 100	341
gac agt ggg gag gta cga gag gac ctt cgt ctg cct gag gga gac ctt Asp Ser Gly Glu Val Arg Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu 105 110 115	389
ggc aag gag att gag cag aag tat gac tgt gga gaa gag atc ctg atc Gly Lys Glu Ile Glu Gln Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile 120 125 130 135	437
aca gtg ctg tcc gcc atg aca gag gag gca gct gtt gca atc aag gct Thr Val Leu Ser Ala Met Thr Glu Glu Ala Ala Val Ala Ile Lys Ala 140 145 150	485
cgag	489

<210> 16  
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<212> PRT  
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Leu Lys Gly Arg Pro Cys Lys Ile Val Glu Met Ser Thr Ser Lys Thr 35 40 45
Gly Lys His Gly His Ala Lys Val His Leu Val Gly Ile Asp Ile Phe 50 55 60
Thr Gly Lys Lys Tyr Glu Asp Ile Cys Pro Ser Thr His Asn Met Asp 65 70 75 80
Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly Ile Gln Asp 85 90 95

Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg Glu Asp Leu  
 100 105 110

Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln Lys Tyr Asp  
 115 120 125

Cys Gly Glu Glu Ile Leu Ile Thr Val Leu Ser Ala Met Thr Glu Glu  
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Ala Ala Val Ala Ile Lys Ala  
 145 150

<210> 17  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 17  
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<210> 18  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 18  
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<210> 19  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 19  
ttgaagggggt gagggaaaa 18

<210> 20  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Primer

<400> 20  
ttgagtgaaa taaag 15

<210> 21  
<211> 18  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Primer

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